

Part IV  
Organic  
U-1

Terpenoids — Isoprene Rule  
By Wallach (1887)

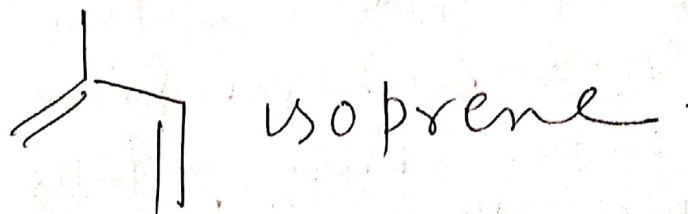
— This is the rule regarding skeleton of terpenoids.

— According to this rule

"The skeleton structure of all naturally occurring terpenoids are built up of isoprene units"

Thus isoprene

rule gives necessary condition to be ~~state~~ satisfied by every naturally occurring terpenoid.

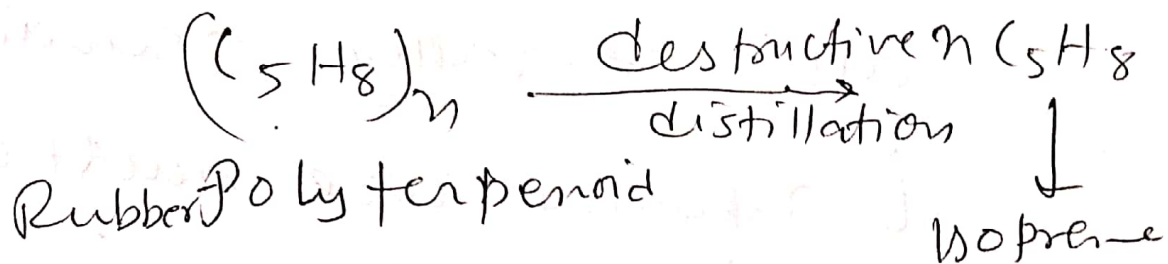


(2-methyl-1,3-butadiene)

# Evidence behind Isoprene Rule

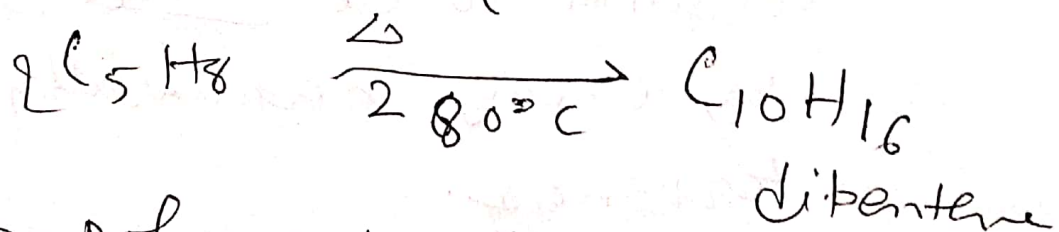
(i) The empirical formula of almost all naturally occurring terpenoids is  $C_5H_8$

(ii) The thermal decomposition of almost all terpenoids gives isoprene as one of the products



Confirmation of isoprene is carried out by -

(i) isoprene undergoes dimerization when heated to  $280^\circ C$



(ii) On polymerization, isoprene gives rubber like polyterpenoid

Special isoprene rule - tells us that isoprene units in terpenoids are linked in head to tail fashion

